

Lifting equipment

1/ Listen and fill in the gaps.

In machinery, various types of lifting equipment are used, like jacks, **hoists** and cranes.

A jack is a mechanism for lifting _____ piece loads during repair, assembly, or loading and unloading operations. Jacks are characterized by small _____, light weight and low speed. They are divided according to the principle of operation and design _____ into **rack-and-pinion jacks**, **screw jacks**, and **hydraulic jacks**.

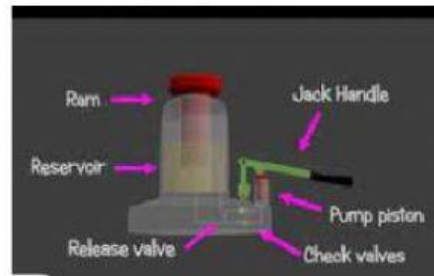


A **screw jack** moves or lifts the load by the _____ of a screw. It is turned with a bar or lever. When the screw is _____, it extends and lifts the load.

The main part of a **rack-and-pinion jack** is the load-carrying rack.



A **hydraulic jack** consists of a compact _____ hydrostatic press with its pump and a reservoir containing a liquid, such as oil. In a hydraulic press _____, a piston-type pump is pulled upward and the hydraulic fluid is pulled out of the reservoir _____ the main cylinder. When the piston is pushed down, the fluid is _____ back into the main cylinder while the **check valve** prevents fluid from reversing into the pumping cylinder. Fluid pressure forces the piston upward. This pressure on the piston is _____ to the object on which the hydraulic jack is acting.



A **hoist** lifts or lowers a _____ by means of a drum or wheel around which a rope or a chain is wound. The load is _____ to the hoist by means of a lifting hook. Now many hoists are package hoists, built as one unit in a single housing.

A crane is a type of machine used for _____ operations. It is generally equipped with a hoist device or a **winch**, **wire ropes** or chains and **sheaves** which can be used both to lift and lower materials and to move them _____.

There are many types of _____. We mention here only some of them, bridge cranes, **gantry cranes**, automobile cranes and **tower cranes**. A gantry crane is a bridge-like lifting machine that has fixed supports or is _____ for running along tracks on the ground level.



2/ Match the English and Czech terms

hydraulic jack

naviják, lanový buben

wire rope

hřebenový zvedák

check valve

kladka

screw jack

ocelové lano

gantry crane

hydraulický zvedák

tower crane

kladkostroj

winch

portálový jeřáb

rack-and-pinion jack

šroubový zvedák

sheave

zpětná klapka

hoist

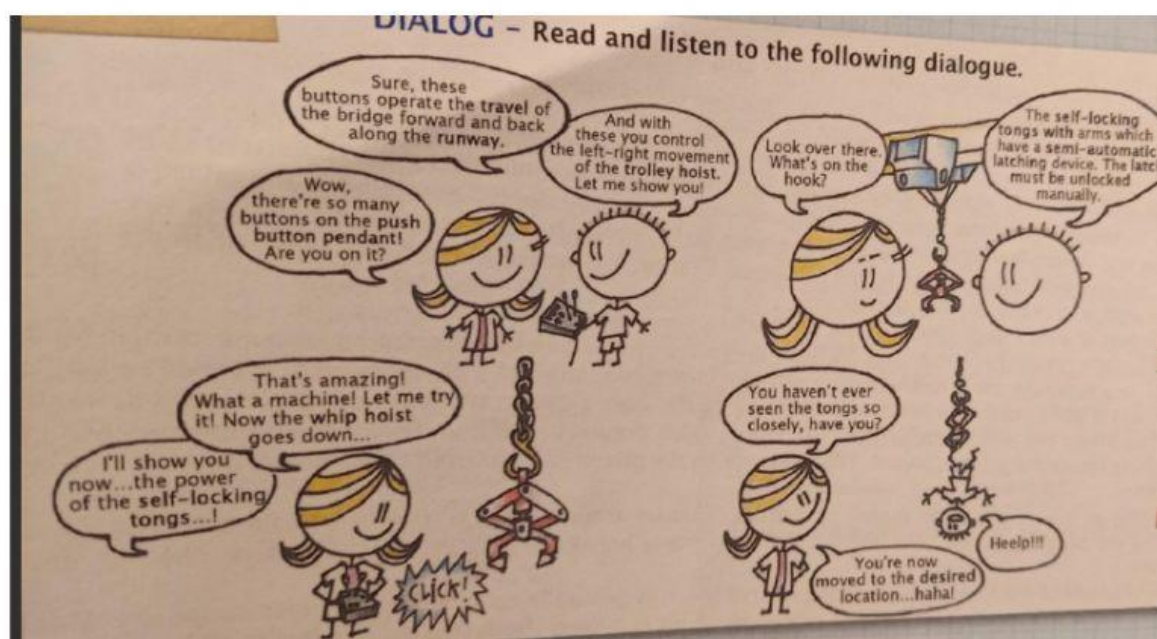
věžový jeřáb

3/ What are they? Use the terms from exercise 2

- 1 A lifting device that moves or lifts the load by the turning of a screw
- 2 A mechanical device which normally allows fluid (liquid or gas) to flow through it in one direction only
- 3 A compact portable hydrostatic press with its pump and a reservoir containing a supply of liquid, such as oil
- 4 A lifting device whose main part is a load-carrying rack
- 5 A lifting machine with a very high steel frame used on construction sites
- 6 A type of rope which consists of several strands of metal wire twisted into a spiral
- 7 A wheel or roller with a groove along its edge for holding a belt, rope or cable
- 8 A bridge-like lifting machine having fixed supports or arranged for running along tracks on the ground level
- 9 A device for lifting or lowering a load by means of a drum or wheel around which a rope or a chain is wound
- 10 A mechanical device that is used to wind up or wind out a rope or a wire rope

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____

4/ Listen , then read the text and match the English and Czech terms.



push button pendant
travel
runway
trolley hoist

pojezdová dráha
pojezd
kočka
ovládací panel

whip hoist
self-locking tongs
latch
semi-automatic

poloautomatický
západka
kladnice
samosvorné kleště

5/ Listen to the dialogue and decide if the sentences are true (T) or false (F)

- 1 Jacks have small dimensions, low weight and are operated at low speeds. ____
- 2 Jacks can be driven manually or electrically. ____
- 3 The load is attached to the hoist by means of a drum. ____
- 4 The hoist with a hook ensures the horizontal movement. ____
- 5 Tower cranes are the biggest lifting devices that can be seen on construction sites. ____

